

REMARKS/ARGUMENTS

The above-identified application has been carefully reviewed in light of the Examiner's communication mailed May 15, 2003, which included a final rejection of all claims presented; and the Advisory Action mailed August 26, 2003 in which the Examiner maintains the final rejection. Submitted herewith is a Request for Continued Examination and required fee. In addition, submitted herewith is an Extension of Time, and required fee extending the period for responding to the Examiner's communication mailed May 15, 2003, to and including October 15, 2003.

Independent claim 1 has been amended to make clear that the core layer circumscribed by the outer layer comprises a second polymeric material which is a thermoplastic polymeric material, and to make clear that the hollow space extends along the entire length of the composite. Other portions of claim 1 have been deleted. Claims 3, 4, 6, 7 have been amended to be consistent with the amendments to claim 1.

Independent claim 18 has been amended to make clear that the composite component is a coextruded composite having a cross-sectional area perpendicular to the length which is substantially uniform in size and shape along the entire length of the composite component and that the hollow space extends along the entire length of the composite component. Dependent claim 21 has been amended to be consistent with claim 18.

Independent claim 26 has been amended to read more clearly.

Claims 5, 20 and 28 have been canceled, without prejudice. The dependency of claim 29 has been amended in view of the cancellation of claim 28.

Each of these amendments is fully supported by the present specification, for example, the drawings and the detailed description.

Claims 1 to 10, 15 and 16 have been rejected under 35 U.S.C.

103(a) as being unpatentable over Sandt. Claims 11 to 14, 18 to 25, 34 and 36 to 40 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Sandt in view of Finley. Claims 11, 13, 14, 18 to 21, 23 to 25, 34 and 36 to 40 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Sandt in view of Deaner et al or Hughes. Claims 11 to 14, 18 to 21, 34 and 36 to 40 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Sandt in view of Stucky et al. Claims 26 to 31, 35, 41 and 42 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Sandt in view of Finley and further in view of Kennedy et al. Claims 26 to 31, 35, 41 and 42 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Sandt in view of Stucky et al and further in view of Kennedy et al. Claims 26 to 30, 35, 41 and 42 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Sandt in view of Deaner et al or Hughes and further in view of Kennedy et al. Applicant traverses each and every one of these rejections as it pertains to the present claims, as amended.

In independent claim 1, a coextruded composite is provided comprising an outer layer comprising a first polymeric material; a core layer circumscribed by the outer layer and comprising a second, thermoplastic polymeric material; and an inner layer circumscribed by the core layer and comprising a third polymeric material. The inner layer defines a hollow space extending along the entire length of the composite.

In independent claim 18, a composite component is provided comprising a weatherable outer layer comprising a first polymeric material; a core layer circumscribed by the outer layer and comprising a wood filled thermoplastic second polymeric material; and an inner layer circumscribed by the core layer and comprising a thermoplastic third polymeric material. The inner layer defines a hollow space extending along the entire length of the composite component. The composite component is a fence component or a

decking component. Further, the composite component is coextruded and a cross-sectional area perpendicular to the length which is substantially uniform in size and shape along the entire length of the composite component.

In independent claim 26, a fencing system is provided and comprises a plurality of fence posts; and a plurality of fence rails fastened to the plurality of fence posts so as to form a fence. Each of the fence posts and fence rails comprises a weatherable outer layer comprising a first polymeric material; a core layer circumscribed by the outer layer and comprising a wood-filled thermoplastic second polymeric material; and an inner layer circumscribed by the core layer and comprising a thermoplastic third polymeric material such that the inner layer defines a hollow space. Each of the fence posts and rails is a coextruded composite having cross-sectional area perpendicular to the composite's length which is substantially uniform in size and shape along the entire length. The hollow space extends along the entire length of the composite.

It is important to note that in each of the present claims the core layer comprises a thermoplastic polymeric material. Moreover, in each of the present claims the composite or composite component is coextruded. That is, the composite or composite component is made in a single extrusion step such that each of the layers is produced in a substantially uniform way, preferably with a hollow space and a cross-sectional area which is substantially uniform in size and shape along the entire length of the composite or composite component.

Sandt discloses tapered, load bearing structural elements, such as poles or beams which may be buried in the ground or otherwise supported in a fixed manner. Sandt discloses that the central core is a reactive resin such as an amine-formaldehyde resin. Sandt discloses that the hollow structural member is made

using separately pre-formed inner and outer sleeves of polyvinyl chloride. Such pre-formed sleeves are aligned to move the sleeves with respect to each other, as by pulling the inner sleeve into the outer sleeve, while gravity filling the space between those sleeves with a reactive resin in liquid form. Fibers or filaments in the liquid reactive resin are pulled into the space between the sleeves so as to extend through the length of the poles or beams. Sandt discloses that the reactive resin is used as a liquid and sets to a hard solid and includes materials such as polyesters, epoxy, phenolic or urea resins which solidify from a liquid form to a hard insoluble final product using heat to accelerate the hardening or setting of the resin.

Submitted herewith is a DECLARATION OF DR. CHRIS J. RAUWENDAAL under 37 CFR 1.132. Dr Rauwendaal, as a result of his education, experience and accomplishments, which are summarized in the Declaration, is an expert in the field of polymeric materials and polymer processing. Dr. Rauwendaal studied the Sandt patent cited against the claims of the above-identified application.

As set forth in the Declaration, Dr. Rauwendaal's expert opinion is that the single reference in Sandt to the reactive resin being a thermoplastic resin is completely erroneous. (Paragraph 6 of the Declaration.) Dr. Rauwendaal outlines several reasons why the reactive resin of Sandt is a thermosetting material, and not a thermoplastic material. (Paragraph 7 of the Declaration.) In addition, Dr. Rauwendaal identifies several incidences in the disclosure of Sandt in which Sandt identifies the reactive resin as a thermosetting material. (Paragraph 8 of the Declaration.)

As a result of his expert study of Sandt, Dr. Rauwendaal concludes that, when considered in its entirety and in its full context, Sandt makes clear that the "reactive resin" is a thermosetting material, and is not a thermoplastic material; and that the use of the term "liquid thermoplastic resin" at column 4

line 62 of Sandt is without basis in fact and is clearly and without doubt incorrect. (Paragraph 9 and 10 of the Declaration.)

Based on the above, it is clear that Sandt discloses only reactive resins made up of thermosetting materials, and does not disclose, teach or even suggest reactive resins made up of thermoplastic materials.

Moreover, Sandt does not disclose, teach or suggest the present invention. For example, Sandt does not disclose, teach or even suggest any layered composite including a middle or core layer comprising a thermoplastic polymeric material, as recited in the present claims. To the contrary, as noted above, Sandt discloses composites including only core-layers made up of thermosetting materials and does not even suggest composites including core layers of thermoplastic materials. Thus, Sandt teaches clearly directly and expressly away from the present invention involving composites having core layers comprising thermoplastic materials.

In addition, applicant submits that it would be unobvious to one of ordinary skill in the art to replace the thermosetting material core disclosed by Sandt with a thermoplastic material core. For example, as stated by Dr. Rauwendaal, the method of making the composites disclosed in Sandt in which the larger sleeve is tilted downward to cause the liquid reactive resin to gravitate toward the small end of the sleeve would be inoperative if the reactive resin was made up of a thermoplastic material. (Paragraph 7 of the Declaration.) Thus, the teachings of Sandt, rather than providing a motivation for substituting the thermosetting resin with a thermoplastic resin in the core layer of the disclosed composite, actually leads away from such a substitution.

Moreover, Sandt does not disclose, teach or even suggest a coextruded composite, as recited in the present claims. The fact that Sandt teaches a composite including separately pre-formed sleeves between which is separately placed a thermosetting material

clearly teaches away from the coextruded composites recited in the present claims.

In view of the above, applicant submits that the present claims, and in particular claims 1 to 10, 15 and 16 are unobvious from and patentable over Sandt under 35 U.S.C. 103(a).

In each of the remaining rejections, Sandt is the primary reference. In providing reasoning for each of these rejections, in Paragraph 3, 4, 5, 6, 7 and 8 of the Examiner's communication mailed May 15, 2003, the Examiner states that Sandt discloses a core made of a thermoplastic polymer in reinforcing fibers. This statement is a substantial basis for each of the rejections set forth in Paragraphs 3, 4, 5, 6, 7 and 8 of the Examiner's communication mailed May 15, 2003.

However, as noted above, and as made clear in the DECLARATION OF DR. CHRIS J. RAUWENDAAL UNDER 37 CFR 1.132, Sandt does not disclose, teach or even suggest a core made of a thermoplastic polymer and reinforcing fibers, as contended for repeatedly by the Examiner. Sandt discloses cores made only of thermosetting materials. Sandt does not even suggest a core made of thermoplastic polymer and reinforcing fibers. As noted above, Sandt actually teaches clearly, directly and expressly away from the use of a core made of a thermoplastic polymer and reinforcing fibers.

With this in mind, applicant submits that it would not have been obvious to one of ordinary skill in the art to combine the teachings of Deaner et al or Hughes or Stucky et al or Finley or Kennedy et al, alone or in any combination with Sandt for any purpose, let alone for the purpose of obtaining the present coextruded composites and composite components. The present coextruded composites and composite components comprising three layers and containing a middle or core layer containing thermoplastic material are different, distinct and patentable from

the composites disclosed by Sandt, which composites include a central core made up of a thermosetting material. (Rauwendaal Declaration, Paragraph 11.) Moreover, Sandt provides no basis for even trying to provide, let alone for actually providing, a three layer coextruded composite having a middle or core layer made up of thermoplastic material. (Rauwendaal Declaration, Paragraph 12.)

In short, none of Sandt and any of the secondary references cited against the present claims, taken singly or in any combination, provide any motivation or incentive to one of ordinary skill in the art to provide a coextruded three layer composite or composite component in which the thermosetting material in the middle or core layer of the non-coextruded composites of Sandt is replaced by a thermoplastic material, as recited in the present claims. This is particularly true since thermoplastic materials are different and distinct from thermosetting materials. None of the references equate thermoplastic materials with thermosetting materials, and the primary reference, Sandt, teaches composite manufacturing methods which would be inoperative if the thermosetting material were to be replaced by a thermoplastic material.

In view of the above, applicants submits that the present claims, and in particular claims 11 to 14, 18 to 25, 26 to 31, 34, 35, 36 to 40, 41 and 42 are unobvious from and patentable over Sandt in view of Deaner et al or Hughes or Stucky et al, Finley or Kennedy et al, alone or in any combination, under 35 U.S.C. 103(a).

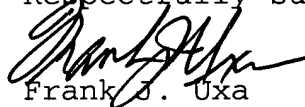
In telephone conversations with the Examiner, three additional patents have been identified to the applicant by the Examiner. These additional patents have been identified in the Supplemental Information Disclosure Statement submitted herewith. Applicant requests that these documents be fully considered by the Examiner and made of record in the above-identified application. Applicant stands ready to address any rejection made by the Examiner

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regarding any of these additional references, either singly or in combination with one or more other prior art references. Applicant believes that each of these additional patents is deficient with regard to the present claims and that the present claims are allowable over each of these additional patents, alone or in any combination.

In conclusion, application has shown that the present claims are unobvious from and patentable over the prior art under 35 U.S.C. 103(a). Therefore, applicant submits that claims 1 to 4, 6 to 16, 18, 19, 21 to 27, 29 to 31 and 34 to 42 are allowable and respectfully requests the Examiner to pass the above-identified application to issuance at an early date. If any matters remain unresolved, the Examiner is requested to call (collect) applicant's attorney at the telephone number given below.

Respectfully submitted,



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This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A composite having a length, the composite comprising:

an outer layer comprising a first polymeric material;

a core layer circumscribed by the outer layer and comprising a second polymeric material which is a thermoplastic polymeric material; and

an inner layer circumscribed by the core layer and comprising a third polymeric material, wherein the inner layer defines a hollow space extending along the entire length of the composite;

~~the composite being a coextruded composite having a cross-sectional area perpendicular to the length and the cross-sectional area having a substantially uniform size and shape along the entire length of the composite.~~

Claim 2 (original): The composite of claim 1 wherein at least two of the first, second and third polymeric materials have different chemical compositions.

Claim 3 (currently amended): The composite of claim 1 wherein at least one of the first, ~~second~~ and third polymeric materials is a thermoplastic polymeric material.

Claim 4 (currently amended) The composite of claim 1 wherein each of the first, ~~second~~ and third polymeric materials is a thermoplastic polymeric material.

Claim 5 (canceled)

Claim 6 (previously amended): The composite of claim 1 wherein the composite has a substantially rectangular cross-section perpendicular to the length.

Claim 7 (previously amended): The composite of claim 1 wherein the core layer is circumscribed by the outer layer along substantially the entire length of the composite and the inner layer is circumscribed by the core layer along substantially the entire length of the composite.

Claim 8 (original): The composite of claim 1 wherein the first polymeric material is weatherable.

Claim 9 (original): The composite of claim 1 wherein the first polymeric material is selected from the group consisting of polyvinylchloride, acrylonitrile/styrene/acrylic polymeric materials and combinations thereof.

Claim 10 (previously amended): The composite of claim 1 wherein the core layer includes an effective amount of a filler.

Claim 11 (original): The composite of claim 1 wherein the core layer includes a wood component in an amount effective as a filler.

Claim 12 (previously amended): The composite of claim 1 wherein the second polymeric material is a thermoplastic polymeric foam and includes a wood component in an amount effective as a filler.

Claim 13 (previously amended): The composite of claim 1 wherein the second polymeric material is a solid thermoplastic

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polymeric material and includes a wood component in an amount effective as a filler.

Claim 14 (previously amended): The composite of claim 1 wherein the core layer includes a wood component in an amount effective as a filler, and the second polymeric material is selected from the group consisting of polyvinylchloride, acrylonitrile/styrene/acrylic polymeric materials, and combinations thereof.

Claim 15 (previously amended) The composite of claim 1 wherein the third polymeric material is polyvinylchloride.

Claim 16 (original) The composite of claim 1 in the form of a fence component or a decking component.

Claim 17 (canceled)

Claim 18 (currently amended): A composite component having a length, the composite component comprising:

a weatherable outer layer comprising a first polymeric material;

a core layer circumscribed by the outer layer and comprising a wood-filled thermoplastic second polymeric material; and

an inner layer circumscribed by the core layer and comprising a thermoplastic third polymeric material, wherein the inner layer defines a hollow space, the composite component being a fence component or a decking component;

the composite component being [[a]] coextruded composite and having a cross-sectional area perpendicular to the length and the cross-sectional area having a substantially uniform size and shape along the entire length of the composite component, and the [[a]]

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hollow space extending along the entire length of the composite component.

Claim 19 (original): The component of claim 18 wherein at least two of the first, second and third polymeric materials have different chemical compositions.

Claim 20 (canceled)

Claim 21 (currently amended): The component of claim 18 wherein the core layer is circumscribed by the outer layer along substantially the entire length of the composite component and the inner layer is circumscribed by the core layer along substantially the entire length of the composite component.

Claim 22 (original): The component of claim 18 wherein the second polymeric material is a foam.

Claim 23 (original): The component of claim 18 in the form of a fence post.

Claim 24 (previously amended): The component of claim 18 in the form of a fence rail.

Claim 25 (original): The component of claim 18 in the form of a decking plank.

Claim 26 (currently amended) A fencing system comprising:
a plurality of fence posts; and
a plurality of fence rails fastened to the plurality of fence posts so as to form a fence, wherein each of said fence posts and fence rails comprises

a weatherable outer layer comprising a first polymeric material;

a core layer circumscribed by the outer layer and comprising a wood-filled thermoplastic second polymeric material; and

an inner layer circumscribed by the core layer and comprising a thermoplastic third polymeric material, wherein the inner layer defines a hollow space;

each of said fence posts and rails being a coextruded composite having a length and a cross-sectional area perpendicular to the length and the cross-sectional area having a substantially uniform size and shape along the entire length, and the [[a]] hollow space extending along the entire length of the composite.

Claim 27 (original): The system of claim 26 wherein at least two of the first, second and third polymeric materials have different chemical compositions.

Claim 28 (canceled)

Claim 29 (previously amended): The system of claim 26 wherein at least one of the plurality of fence posts and the plurality of fence rails have substantially rectangular cross-sections perpendicular to the lengths.

Claim 30 (previously amended): The system of claim 26 wherein the core layer is circumscribed by the outer layer along substantially the entire length of each of said fence posts and rails, and the inner layer is circumscribed by the core layer along substantially the entire length of each of said fence posts and rails.

Claim 31 (original): The system of claim 26 wherein the second

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polymeric material is a foam.

Claim 32 (withdrawn)

Claim 33 (withdrawn)

Claim 34 (previously added): The component of claim 18 wherein the first polymeric material is selected from the group consisting of polyvinylchloride, acrylonitrile/styrene/acrylic polymeric materials and combinations thereof.

Claim 35 (previously added): The system of claim 26 wherein the first polymeric material is selected from the group consisting of polyvinylchloride, acrylonitrile/styrene/acrylic polymeric materials and combinations thereof.

Claim 36 (previously added): The composite of claim 1 wherein the first polymeric material and the third polymeric material are both polyvinylchloride, and the core layer comprises a wood-filled acrylonitrile/styrene/acrylic polymeric material.

Claim 37 (previously added): The composite of claim 1 wherein the first polymeric material and the third polymeric material are both polyvinylchloride, and the second polymeric material is selected from the group consisting of polyvinylchloride, acrylonitrile/styrene/acrylic and combinations thereof.

Claim 38 (previously added): The composite of claim 37 wherein the core layer includes a wood component in an amount effective as a filler.

Claim 39 (previously added): The composite of claim 18

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wherein the first polymeric material and the third polymeric material are both polyvinylchloride, and the second polymeric material is acrylonitrile/styrene/acrylic.

Claim 40 (previously added): The composite of claim 18 wherein the first polymeric material and the third polymeric material are both polyvinylchloride, and the second polymeric material is selected from the group consisting of polyvinylchloride, acrylonitrile/styrene/acrylic and combinations thereof.

Claim 41 (previously added): The composite of claim 26 wherein the first polymeric material and the third polymeric material are both polyvinylchloride, and the second polymeric material is acrylonitrile/styrene/acrylic.

Claim 42 (previously added) The composite of claim 26 wherein the first polymeric material and the third polymeric material are both polyvinylchloride, and the second polymeric material is selected from the group consisting of polyvinylchloride, acrylonitrile/styrene/acrylic and combinations thereof.